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Working with the parents and families of children with developmental language disorders: An international perspective

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ABSTRACT

Background: The relationship between parental input and child language development has had a complex history. It has become clear that indirect parent training for the parents of children with delayed language development is an important feature of interventions offered by speech and language therapists in the anglophone countries. Yet we know less about how this type of approach is realised in other countries.

Methods: In this paper we report the results of a survey of practice undertaken as part of the work of COST Action IS1406, a European Union (EU) funded research network. The focus of this paper is specifically on parent-related questions and responses referring to children under the age of twelve. The survey was devised by members of the Action and circulated electronically during the summer of 2017. In all, 4024 practitioners responded from 60 countries, the majority of whom came from EU member countries.

Findings: Respondents to the survey indicated that indirect therapy is commonly carried out via the parent in the early years and via teachers later. A range of professional groups, in addition to speech and language therapists, is likely to adopt this approach; including teachers, pedagogues and psychologists. A variety of interventions is reported, some of which have a reasonable evidence-base underpinning them. It is interesting to see the widespread involvement of fathers and other family members in interventions. Finally, the fact that practitioner characteristics (age, experience, location of practice etc.) are not related to the use of indirect techniques points to the universal recognition of the value of these approaches.

Conclusions: Despite the very different traditions in the practice of intervention across countries, there is clearly a widespread recognition of the importance of indirect approaches to intervention and specifically those focusing on parents. The mixture of family members being involved in interventions is a very promising indication of the role sharing commonly associated with the contemporary family. Yet the number of specific intervention approaches identified is relatively small given the number of respondents. There is a need for a better understanding of what exactly practitioners are doing when they involve parents in intervention or carry out parent-child

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interaction interventions and how well these interventions work in routine practice. This also has implications for the application of evidence-based practice and the precise nature of the interventions concerned (advice to parents, video interaction training etc.).

1. Introduction

Over the recent years there has been a shift in practice across the health and social services towards a more family-centred approach, embracing parental involvement in all aspects of intervention with the whole family as the client rather than just the child (Moeller, Carr, Seaver, Stredler-Brown, & Holzinger, 2013; Pappas, McLeod, McAllister, & McKinnon, 2008). Indeed, Rosenbaum (2016, p. 528) argued that according to the International Classification of Functioning (ICF) (World Health Organisation, 2001) "the family is the essential environment in which children grow and develop - whatever its composition. Hence our unit of interest should be 'child-in-family'". The shift to family-centred models has been driven by theoretical models such as Bronfenbrenner's (1979), where he argues that the child's development is influenced not only by its innate characteristics, but also by the child's interaction with immediate environment and wider context. This increase in involvement of families has been underpinned by policy drivers (e.g., England's Department for Education & Department for Health, 2015), and general awareness that the context in which the child grows up is likely to have a bearing on the social gradient associated with children's language learning abilities. This particularly concerns the way that parents interact with children (Hart & Risley, 1995; Hoff & Naigles, 2002; Hoff, 2006; Majorano, Rainieri, & Corsano, 2012).

One group which has attracted considerable attention are children with the most marked language learning difficulties or developmental language disorder (DLD) (Bishop, Snowling, Thompson, & Greenhalgh, 2016; Bishop, Snowling, Thompson, Greenhalgh, & CATALISE Consortium, 2017), where the cause of the problem is commonly understood to be neurodevelopmental and genetic in origin. This has raised questions about the potential role that parents are likely to play in ameliorating a child's symptoms.

Interventions for children with DLD can be conceptualised as direct or indirect, or some configuration of both. Traditionally, an individualistic therapist-centred model of service delivery has been adopted by SLTs, where the focus has been on the child rather than the family. Children were typically brought to clinics and, following assessment and diagnosis, the intervention would be delivered directly to the child by the SLT (Roulstone et al., 2015). However, over the past thirty years there has been an increasing use of indirect approaches to intervention, which aim to optimise the communication environment in the family; often by directly training parents in parent-child interaction (Law, Dennis, & Charlton, 2017). Such approaches are more common in younger children, and from age 5 the focus typically shifts from working via parents to a more pedagogical model where SLTs work via teachers (Boyle, McCartney, O'Hare, & Forbes, 2009; McCartney, Boyle, Ellis, Bannatyne, & Turnbull, 2015; McKean et al., 2017; Roulstone & Lindsay, 2012). Within a public health context, such interventions are commonly construed as targeted or specialist rather than universal, in the sense that children are directed towards them because they have been identified as having restricted language scores (Law, Reilly, & Snow, 2013). While studies examining the effectiveness of parent-child interaction and of home-delivered interventions for children identified with low language have reported positive results (Roberts & Kaiser, 2011; Wake et al., 2013), less is known about routine practice. There have been national surveys of speech and language therapy practices with regard to working with children with speech sound disorders (Brumbaugh & Smit, 2013; Joffe & Pring, 2008). For example, two Australian surveys have shown that SLTs involve parents rather commonly in intervention, with figures ranging between 88% (McLeod & Baker, 2014) and 98% (Pappas et al., 2008). However, much less is known about speech and language therapy practices for children with DLD and what happens from an international perspective.

Many of the parent-child interaction interventions shown to be effective have often been relatively small "clinical" studies (Allen & Marshall, 2011; Alpert & Kaiser, 1992; Crowe, Norris, & Hoffman, 2004; Hemmeter & Kaiser, 1994; Justice, Kaderavek, Bowles, & Grimm, 2005). This is irrespective of whether interventions are offered directly by speech and language therapists or indirectly by parents, or whether they focus on expressive or receptive skills (Law, Garrett, & Nye, 2004; Roberts & Kaiser, 2011). Although the evidence for parental involvement in speech and language therapy is convincing, less attention has been paid to what sort of services are routinely provided in a given country, and whether these patterns are sustained across countries. While service delivery models and funding are clearly key to the way services are delivered, there is also the question of the parent's perspective. Parents clearly have a view about how services are delivered (Band et al., 2002), but their views on their involvement in intervention and, more specifically, on parent-child interaction therapy, are less clear. Indeed, there is evidence to suggest that parents may have a different perception of their role in intervention from that of the SLT (Davies, Marshall, Brown, & Goldbart, 2016; Lyons, O'Malley, O'Connor, & Monaghan, 2010). This might be due to the time available to them, their confidence with the task and their perception of the benefits of those tasks (Justice, Logan, & Damschroder, 2015; Kaiser, Hemmeter, Ostrosky, Alpert, & Hancock, 1995; Pappas et al., 2008). Some studies have found that parents' and therapists' perceptions of the family-centred practices were similar (e.g., Crais, Poston Roy, & Free, 2006; Iverson, Poulin Shimmel, Ciacera, & Meenakshi, 2003), while others found that their perceptions differ (e.g., Bruce et al., 2002). Parental involvement in intervention has tended to focus on mothers, but given the different patterns of childcare experienced by many children, there is no reason why this should be the case. For example, fathers have been shown to have a strong link to child behaviour and outcomes (Baker & Vernon-Feagans, 2015; Pancsofar & Vernon-Feagans, 2010) and often welcome the opportunity for such involvement. Similarly, the nature of the involvement of grandparents in childcare varies considerably across Europe (Hank & Buber, 2009) although there is "remarkably little solid evidence" on the role of grandparents in interventions, which "lends itself to thoughtful exploration in many ways" (Rosenbaum, 2016, p. 528).

Given the interest in indirect work with parents and children, it is important to establish how common this sort of approach is across countries. The starting point for such an enquiry is a survey of speech and language practitioners across national borders. The focus of the present study is the findings from such a survey, the largest practitioner survey of its kind ever completed, carried out through a COST Action research network #IS1406 called: *Enhancing children's oral language skills across Europe and beyond - a collaboration focusing on interventions for children with difficulties learning their first language* (Law, McKean, Murphy, & Thoradadottir, 2019). The Action was set up to enhance the science in the field, improve the effectiveness of services for children with DLD, and develop a sustainable network of researchers well placed to answer a number of key questions in this area, as stated below. Note that the Action started before the consensus on the term *developmental language disorder* was reached, so 'Language Impairment' is the term used in the survey. As part of the survey, practitioners were asked about their use of indirect intervention carried out through others (notably parents, other family members and teachers) and it is these questions (outlined below) that are the primary focus of this paper.

We asked a series of research questions which were underpinned by the need to tease out more about how parent-child interaction interventions are delivered across Europe. Specifically, we were interested in whether this sort of training was a feature of those trained as speech and language therapists, or whether it was an approach used by all early-years workers. We also wanted to know what characteristics of the child determined whether this sort of approach was adopted. For example, we predicted that parent-child intervention would be the focus of work with younger children, and that it would become less salient as the child enters the school system, as parents commonly become more distal to services. Experience in the Action suggested that the choice of programme was marked by heterogenity and while many practitioners maintained that they carried out this type of work, a variety of named programmes were adopted, in some cases named programmes were not used at all. As indicated above, such programmes are commonly associated with the mother, although all too often families are blended, and hence fathers, grandparents and other carers are an integral element in the process. Finally, we were interested in whether there were some practitioner-specific factors that influence their decision on the involvement of different family members in this type of intervention. To address this, we looked into the respondents' age, work experience and other work-related variables.

Research Questions:

a) Who carries out parent training with children with DLD?
b) What are the characteristics (age, type of language impairment and severity) of children with whom practitioners carry out indirect parent training?
c) What are the most common parent-child interaction programmes?
d) Which family members are involved in therapy?
e) Which variables associated with the practitioner's characteristics (age, amount of work experience and work sector) are associated with the involvement of different family members?

2. Methods

2.1. The practitioner survey

The practitioner survey was developed over a period of six months. The initial questions were generated by members of each of the three working groups in the COST Action. These questions were refined and condensed through group discussion. The final set of questions was agreed in December 2016 by a group of representatives from each country who were members of the Action (the national team). The survey was translated into 30 languages and was distributed by a national team for each country. The practitioners targetted by the survey were those who had direct management responsibilty for children with DLD and this was specifically stated on the cover of the survey. In most cases, this was assumed to be a speech and language pathologist/therapist, but we did not postulate this to be the case in all countries. The survey was disseminated through 190 members of the Action and their national teams, and respondents were asked to "snowball" it to colleagues across their countries and other professional colleagues.

Ethical opinion was sought and approval received from the University of Newcastle Research Ethics Committee on 18 January 2017 (Ref: 11532/2016). A copy of the ethical opinion was sent to those involved in preparing the survey and they were asked to share it with local bodies as necessary. In completing the survey, consent was assumed by virtue of participation. The full dataset was anonymised and made available to designated researchers. It was also agreed to share anonymised country-specific data with national teams.

The survey had four sections: Section 1 – Some information about you; Section 2 – Issues regarding intervention delivery; Section 3 – Theoretical considerations; and Section 4 – The social and cultural context of intervention for children with language impairment. In Sections 2 and 3, respondents were asked to respond in relation to a specific child with whom they have worked. The detail is provided elsewhere (Law et al., 2019) but the questions for the present analyses are provided in Appendix 1, as well as examples of questions ommitted from this analysis.

2.2. Data analysis

In the first instance, all data were tabulated and reported descriptively with distributions tested for normality. In line with our research questions, tables were constructed comparing variables statistically (using Pearson's chi squared (χ^2) and t tests as appropriate) and associations tested. As is common in surveys of this type, response rates vary by question. Missing data were not

imputed.

2.3. Participants

The initial response rate was 6003, but there were a number of questionnaires (n = 979) from which it was not possible to obtain more than participant details, and which were therefore excluded. The final number of questionnaires which fed into the subsequent analyses was 5024. The flow diagram for the inclusion is provided in Fig. 1.

The responses came from 59 countries, a number much larger than the 36 countries involved in COST Action IS1406. This is clearly a function of the electronic method of dissemination. Only one country asked to have paper copies of the survey. The majority of the countries of response were in Europe or amongst the "near neighbour" countries reflecting the main focus of the Cost Action. A near neighbour country is one that is located close to Europe but is not one of the 28 countries that make up the EU, and whose government pays into the COST scheme. COST Near Neighbour Countries include Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Jordan, Kosovo, Lebanon, Libya, Morocco, the Palestinian Authority, Russia, Syria, Tunisia and Ukraine. The outlier here is South Africa whose members have been active contributors to the COST Action. The key characteristics of the respondents in terms of age, qualification and experience are provided in Table 1.

As indicated above, for questionnaire Sections 2 and 3, respondents were asked to refer to a specific child, rather than to talk about children generally. For reference, and because this is of direct relevance to the analyses related to parent-child interaction interventions, we summarise the characteristics of the reference children in Table 2 below, both for the whole sample and for the children under the age of twelve. As Table 2 suggests, the age of the child identified by the respondents varied considerably from five months to nineteen years. Because the role of the parent varies substantially according to the age of the child, only data for children under the age of twelve years were included in the present analyses, i.e., the age at which they would have completed their primary or elementary school education in most countries.

3. Results

3.1. Who carries out parent training with children with DLD?

Survey items used to address this question were: 1.2, 2.4, 2.5, and 3.1 (see Appendix 1). Table 3 illustrates the proportion of respondents by their profession who indicated that they use indirect therapy via the parent and parent-child interaction training with the reference child. Unsurprisingly, over 80% of SLTs reported parent training via indirect therapy. Under half (45%) of the SLT respondents reported using parent-child interaction training. Interestingly, although a small overall number of respondents were audiologists, 80% reported using indirect therapy via the parent, while 22% of audiologists reported using parent-child interaction training. Just over 70% of respondents who were teachers reported using both indirect therapy via the parent and parent-child interaction training.

3.2. What are the characteristics (age, type of language impairment and severity) of children with whom practitioners carry out indirect parent training?

Survey items used to address this question were 2.1–2.5 (see Appendix 1). The characteristics of the reference child by indirect therapy are shown in Table 4, comparing indirect therapy via the parent with indirect therapy via others (others here include teachers, teaching assistants, and special education practitioners). The mean age of children who receive indirect therapy via their

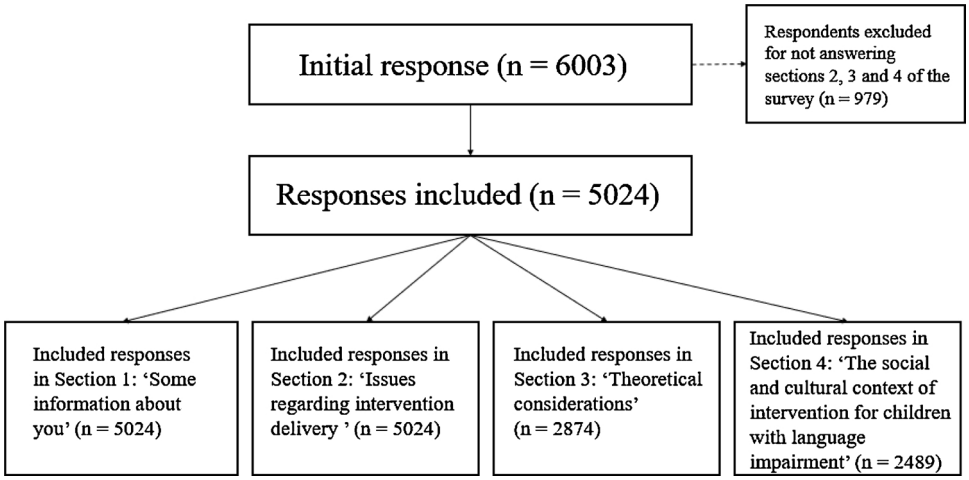

Fig. 1. Flow diagram providing the identification of the sample.

Table 1
The key characteristics of the survey respondents (N = 5024).

	Section 1 (*N = 5024*)	Section 2 (*N = 5003*)	Section 3 (*N = 2827*)	Section 4 (*N = 2489*)
Gender, N (%)				
Male	223 (4.4)	223 (4.5)	131 (4.6)	114 (4.6)
Female	4801 (95.6)	4780 (95.5)	2696 (95.4)	2375 (95.4)
Age, N (%)				
20-30	1339 (26.6)	1333 (26.6)	738 (26.1)	665 (26.7)
31-40	1460 (29.1)	1453 (29.0)	803 (28.4)	730 (29.3)
41-50	1160 (23.1)	1156 (23.1)	670 (23.7)	585 (23.5)
51-60	885 (17.6)	883 (17.7)	507 (17.9)	435 (17.5)
60+	180 (3.6)	178 (3.6)	109 (3.9)	74 (3.0)
Job title, N (%)				
Speech and Language therapist/pathologist	4020 (80.0)	4007 (80.1)	2274 (80.4)	2005 (80.6)
Audiologist	18 (0.4)	18 (0.4)	9 (0.3)	8 (0.3)
Special Educator	129 (2.6)	129 (2.6)	67 (2.4)	57 (2.3)
Psychologist	105 (2.1)	104 (2.1)	57 (2.0)	52 (2.1)
Linguist	41 (0.8)	41 (0.8)	28 (1.0)	24 (1.0)
Teacher	64 (1.3)	64 (1.3)	31 (1.1)	29 (1.2)
Pedagogue	38 (0.8)	38 (0.8)	22 (0.8)	16 (0.6)
Medical Doctor	20 (0.4)	20 (0.4)	7 (0.3)	4 (0.2)
Combination	317 (6.3)	316 (6.3)	188 (6.7)	164 (6.6)
Other	272 (5.4)	266 (5.3)	144 (5.1)	130 (5.2)
Level of professional qualification, N (%)				
Non-University: Diploma	432 (8.6)	431 (8.6)	222 (7.9)	184 (7.4)
Non-University: Other	72 (1.4)	70 (1.4)	35 (1.2)	31 (1.3)
University: Undergraduate/Bachelor degree	1919 (38.2)	1912 (38.2)	1088 (38.5)	960 (38.6)
University: Masters	2067 (41.2)	2059 (41.2)	1157 (40.9)	1028 (41.3)
University: Dr (PhD)	138 (2.7)	137 (2.7)	91 (3.2)	83 (3.3)
University: Other (e.g., Diploma)	397 (7.9)	394 (7.9)	234 (8.3)	203 (8.2)
Years of experience	(n = 5006)	(n = 4986)	(n = 2815)	(n = 2478)
Mode	10 years	10 years	10 years	10 years
Range	0-47 years	0-47 years	0-47 years	0-45 years
Mean	12.8 years	12.8 years	13.0 years	12.7 years
Standard deviation	9.8 years	9.8 years	9.8 years	9.5 years

Table 2
Characteristics of reference child for the whole sample and the sample restricted to children under the age of 12 years.

Age in months	Whole sample (N = 5003)	Child < 12 years (N = 4853)
Mode	60	62
Range	5-228	5-143
Mean	69.6	66.6
SD	28.3	22.6
Type of language impairment, N (%)	(*N = 5024*)	(*N = 4853*)
Receptive only	82 (1.6)	74 (1.5)
Expressive only	1571 (31.3)	1545 (31.8)
Mixed Receptive Expressive	3371 (67.1)	3234 (66.6)
Severity of language impairment		
Mild	418 (8.3)	405 (8.4)
Moderate	2760 (54.9)	2670 (55.0)
Severe	1846 (36.7)	1778 (36.6)

parent (63.6, SD 22.1) is 14 months younger than the mean age of children who receive indirect therapy via others (77.7, SD 37.5; $p < 0.001$). The proportion of children with expressive only language difficulties is significantly higher for indirect via parent therapy compared to indirect via others therapy (29.8% vs 18.4%, $p < 0.001$). The severity of the child language difficulty is similar for children who receive indirect therapy via the parent compared to indirect via other.

When examining the child's characteristics according to whether or not the practitioner does parent-child interaction training specifically with the reference child, the mean child age (63.0, SD 21.8) is 7 months younger than of those children whose practitioner does not perform parent-child interaction training with (70.0, SD 23.4) (see Table 5). When comparing those practitioners who do parent-child interaction training with those who do not do parent-child interaction training with the reference child, there is little

Table 3
Professional's job by those who use indirect therapy via parent, and parent-child interaction training.

Respondent's job	Indirect via parent	Parent-child interaction training (often/always)
SLT/SLP	80.4% (860/1070)	44.9% (999/2227)
Audiologist	80.0% (8/10)	22.2% (2/9)
Special Educator	46.0% (17/37)	29.3% (17/58)
Psychologist	46.8% (22/47)	60% (30/50)
Linguist	42.9% (3/7)	44.4% (12/27)
Teacher	71.4% (10/14)	72.0% (18/25)
Pedagogue	64.7% (11/17)	47.6% (10/21)
Medical Doctor	35.3% (6/17)	14.3% (1/7)
Combination[a]	76.5% (78/102)	51.5% (88/171)
Other +	74.0% (57/77)	55.2% (75/136)

[a] Combination are mostly SLT plus (e.g., linguist); + for Other, 4 have written SLT.

Table 4
Characteristics of reference child comparing those practitioners who said 'yes' to indirect therapy via the parent versus indirect via other.

	Indirect therapy via parent (*N = 1072*)	Indirect via other (*N = 326*)	*P*
Age in months, mean (SD)	63.6 (22.1)	77.7 (26.8)	*< 0.001*[a]
Type of language impairment			*< 0.001*[b]
Receptive only	14 (1.3%)	9 (2.8%)	
Expressive only	319 (29.8%)	60 (18.4%)	
Mixed receptive expressive	739 (68.9%)	257 (78.8%)	
Severity of language impairment			*0.904*[b]
Mild	76 (7.1%)	22 (6.8%)	
Moderate	560 (52.2%)	167 (51.2%)	
Severe	436 (40.7%)	137 (42.0%)	

[a] t test.
[b] χ^2 test.

Table 5
Characteristics of the reference child for whom the practitioner said 'yes' to parent-child interaction training; comparing those who offer it often or always with those who do so occasionally, never or who don't know.

	Parent-child interaction training (often/always) (*N = 1252*)	Parent-child interaction training (occasionally/never/don't know) (*N = 1479*)	*P*
Age in months, mean (SD)	63.0 (21.8)	70.0 (23.4)	*0.001*
Type of language impairment	*N = 1252*	*N = 1479*	*0.883*
Receptive only	16 (1.3%)	17 (1.2%)	
Expressive only	381 (30.4%)	461 (31.2%)	
Mixed receptive expressive	855 (68.3%)	1001 (67.7%)	
Severity of language impairment	*N = 1252*	*N = 1479*	*0.249*
Mild	104 (8.3%)	107 (7.2%)	
Moderate	707 (56.5%)	810 (54.8%)	
Severe	441 (35.2%)	562 (38.0%)	

a = t test, b = chi ^{2} test.

difference in terms of the proportions of type of language impairment and severity of language impairment. Two thirds of the children have mixed receptive-expressive, and just over half of the children have moderate impairments.

Because parent training is typically done with younger children, we split the age variable into the following age groups: up to 4 years (1898/4853, 39.1%); 4–7 years (2338/4853, 48.2%); 8–11 years (617/4853, 12.7%), and then tested the key relations for both direct / indirect intervention and for those specifically using parent-child interaction training.

For practitioners using indirect therapy via the parent, when age is used as a categorical variable, there clearly is a relationship between age group and type of language impairment (χ^2 (4) = 13.65 p = 0.009), but not between age group and severity. The proportion of reference children with a receptive difficulty reportedly receiving indirect therapy via parent was 71.4% (10/14) for children 4–7 years compared to 28.6% (4) and 0% (0/0) for children under age 4 years and 8–11 years, respectively. For expressive difficulties, proportions were slightly higher for the under 4 years group (50.2%, 160/319) compared to the 4–7 years group (43.3%, 138/319), and very small for the 8–11 years group (6.6%, 21/319). For mixed expressive-receptive difficulties, the proportion of children receiving indirect therapy via the parent is similar for the under 4 years group (44.1%, 326/739) and the 4–7 years group (43.6%, 322/739), while only 12.3% (91/739) for the 8–11 years group. Practitioners are more likely to use indirect approaches with

younger children and with different types of language impairment, but this did not seem to be sensitive to the severity of the child's impairment.

When examining the relationship between age group and type and severity of language impairment based on practitioners using parent-child interaction training, there is a significant relationship between age group and both type (χ^2 4 = 14.17, p = 0.007) and severity of language impairment (χ^2 (4) = 21.96, p < 0.001). TBLE 6 shows the proportions of children in each age group by both type and severity of language impairment. Almost two thirds of children in the under 4 years group have receptive difficulties (62.4%, 10/16) compared to the other age groups. Just over half of the children with extreme language impairment are in the under 4 years group (51.9%, 229/441). When practitioners are referring to their use of parent-child interaction training as opposed to indirect therapy via the parent, practitioners' use of parent-child interaction training is with younger children with both different types and severity of language impairment (Table 6).

3.3. What are the most common parent-child interaction programmes?

Respondents were asked to say which specific parent-child interaction programmes they used (see item 4.1 in Appendix 1). In total, 250 of them responded to this question and the most common examples of programmes with available contact links are given in Table 7 below. Of course, others may simply not have been aware of the names of the programmes they use, or do not use a specific programme at all, which could explain the reduction in responses for this question.

Of course, these are the examples provided by respondents. They do not necessarily represent those with the strongest empirical underpinning. Further detail is available about this level of information on a variety of evidence based accessible toolkits (http://www.thecommunicationtrust.org.uk/whatworks; https://educationendowmentfoundation.org.uk/evidence-summaries/early-years-toolkit/ and https://www.eif.org.uk/) although these are written in English and tend to refer to data collected in the UK.

3.4. Which family members are involved in therapy?

This question was addressed by examining survey item 4.2 (see Appendix 1). Unsurprisingly, the person most involved in services is the mother (see Table 8), with 31.5% (768/2442) of respondents stating only mothers are typically involved in services with the child. Joint mother and father involvement was the largest combination of family members involved (45.5%; 1110/5003). Other combinations of family members, for example mother and siblings or grandparents, accounted for 22.9% (558/2442) of responses. These data reflect what would typically happen in an intervention where the mother and other family members would be involved. It is also possible to tease these apart; then the numbers where fathers or grandparents were exclusively involved in this type of indirect work is tiny (0.1 and 0.2%, respectively).

3.5. Which variables associated with the practitioner's characteristics (age, amount of work experience and work sector) are associated with the involvement of different family members?

Another issue of concern when determining who provides indirect parent-focused interventions is the characteristics of the practitioners who deliver the training. When examining the level of professional qualification, and whether practitioners work with mothers only or with mothers and other family members, the proportions are almost identical across each category. Although, the proportion of those who work with the parent and another family member rises slightly as qualifications rise. The proportion of mother and another family member for practitioners with a non-university diploma is 58.1%, while for those with a PhD it is 66.5%. There were no statistical differences between these groups. Similarly, the age of the practitioner made little difference with approximately two thirds saying they worked with the mother and other family members, with the youngest and the oldest practitioner

Table 6
Age groups by type and severity of language impairment for children receiving parent-child interaction training.

	Type of language impairment[a]			p
	Receptive only	Expressive only	Mixed receptive-expressive	
Child age group	*N = 16*	*N = 381*	*N = 855*	*0.007*
< 4 years	3 (18.8%)	190 (49.8%)	386 (45.2%)	
4-7 years	10 (62.4%)	169 (44.4%)	375 (43.8%)	
8-11 years	3 (18.8%)	22 (5.8%)	94 (11.0%)	
	Severity of language impairment[a]			p
	Mild	Moderate	Extreme	
Child age group	*N = 104*	*N = 707*	*N = 441*	*< 0.001*
< 4 years	29 (27.9%)	321 (45.4%)	229 (51.9%)	
4-7 years	58 (55.8%)	319 (45.1%)	177 (40.1%)	
8-11 years	17 (16.3%)	67 (9.5%)	35 (8%)	

[a] χ^2 test.

Table 7
Most commonly reported parent-child interaction programmes and who delivers them (*N = 250*).

Name of the programme?	Contact link (if available)	Who delivers the programme?	*N (%)*
Heidelberger Parent Training	https://www.researchgate.net/publication/271163525_Heidelberger_Elterntraining_zur_fruhen_Sprachforde-rung_in_der_Praxis_Wie_zufrieden_sind_die_Eltern	Speech and language therapists	71 (28.4)
Birth and Children Office (ONE)	https://www.one.be/public/cest-quoi-lone/about-us/	SLT and social workers	14 (5.6)
Early Stimulation Centers	Not specified	SLTs, psychologists, physiotherapist, social workers	54 (21.6)
Hanen Programmes	http://www.hanen.org/CMSPages/PortalTemplate.aspx?aliaspath=%2fHome	SLTs	38 (15.2)
Happy Talk	https://www.hse.ie/eng/services/list/1/lho/corknorthlee/therapy/happy-talk/	SLTs	10 (4)
Käsikynkkä (interaction and language groups for young children)	https://thl.fi/fi/web/lastensuojelun-kasikirja/tyomenetelmat-ja-valineet/tyomenetelmat/kasikynkka	SLTs	4 (1.6)
Marte Meo	http://ichn.ie/marte-meo/	Health visitor/ pedagogues	6 (2.4)
Theraplay	https://theraplay.org/	SLT and psychologist	4 (1.6)
Beyond the book	Not specified	Psychologist and SLT	5 (2)
Interact	Not specified	SLT	44 (17.6)

Table 8
Family member most involved in service delivery.

Family Member (*N = 2442*)[a]	*N (%)*
Mother only	768 (31.5)
Mother & Father	1,110 (45.5)
Father only	2 (0.1)
Grandparents only	4 (0.2)
Other (combinations of mother, grandparents, siblings, father, other family members)	558 (22.9)

[a] Respondents could select multiple responses (e.g., tick yes to mother, yes to father, yes to grandfather).

groups being more likely to engage with mothers and other family members (χ^2 (4) = 12.44; p = 0.014). Specifically, the age group 41–50 years involved more mothers exclusively than the rest of age groups (χ^2 (1) = 5.39; p = .002), but with Bonferroni correction the difference does not achieve statistical significance (0.05/10).

Another possible determinant of this decision is the practitioner's place of work and this was indeed statistically significant (χ^2 (7) = 22.85; $p < 0.002$). Specifically, practitioners working in mainstream schools involved more mothers exclusively than the other settings (χ^2 (1) = 5.62; p = 0.0178). However, the difference does not hold once the Bonferroni's correction has been applied (0.05/16). We could say that there is only a tendency in those professionals who work with children < 12 years. Finally, we looked at the sector in which the practitioners work. There are differences in which members of the family are involved in the intervention with regard to the sector the practitioners work in (χ^2 (5) = 16.16; $p < 0.006$). Specifically, mothers (exclusively) are more likely to be involved in the services delivered within the public sector (education) than within other sectors (χ^2 (1) = 5.41; p = 0.02). However, again once the Bonferroni correction is applied, the differences do not reach statistical significance (0.05/12).

4. Discussion

This study highlights the importance of exploring speech and language therapy practices across cultural contexts and ways in which evidence relates to practice (Roulstone & Lindsay, 2012). It is clear from these responses that indirect intervention and parent-child interaction training is a relatively commonly used approach for children with DLD of different ages and with different profiles. The findings suggest that the agent of indirect therapy tends to be the parent for younger children and the teacher for older. These findings support previous studies, highlighting that the focus of indirect therapy shifts from working via parents with younger children to working via teachers from around the age 5 (Law et al., 2017; Roulstone & Lindsay, 2012; McCartney et al., 2015).

It is reassuring that a range of professionals, not just SLTs, report using this approach. However, the differences in the proportions reported by some groups of professionals in terms of using indirect therapy via the parent or parent-child interaction training (e.g. 80% of SLTs using indirect vs 50% SLTs using parent-child interaction training), highlights that there may be differences in how professionals conceptualise parent training altogether. The range of interventions reported is quite wide and at least some have a strong evidence-base underpinning them. Yet, there were many respondents who did not report on a specific programme and what this implies would need to be explored further, both in efficacy studies and in qualitative studies of the practitioners' views about the programmes they use and the principles that they follow when delivering intervention. It is important to note the widespread involvement of fathers and other family members alongside mothers in the interventions, although the latter still bear the brunt of the

responsibility of supporting their young children's development. It is also interesting to see that the characteristics of the practitioner (such as age, experience, location of practice) do not seem to have any effect on the practice itself.

From a public health and preventative perspective, it was encouraging to see that 49% of respondents reported that they were aware of parent-child interaction programmes offered to children considered at risk of language impairment, and these were delivered by a mixture of SLTs and other professionals. However, it was not clear how widespread or accessible these programmes were across countries. It is noteworthy that this figure is lower than that reported in a national survey of UK representatives from children's SLT services about public health interventions in which 61% said they offered parenting programmes (Law & Pagnamenta, 2017). It is also interesting to note that many respondents reported that they worked with other professionals such as social workers and psychologists in this health promotion work (see survey question 4b in Section 2.1 *The Practitioner Survey*). This raises a number of important questions. What is the likely impact of parent-child interaction on the delivery of SLT services? To what extent does parent/child interaction underpin DLD and can it contribute to improving or hindering outcomes for a child at risk of/with DLD? If DLD is persistent, is parent-child interaction actually a tertiary form of prevention – i.e., reducing the impact of the disorder and raising the parents' awareness of the child's needs or should it be regarded as secondary prevention, i.e., eliminating the problem?

Similarly, is there a role for messages about parent-child interaction as primary prevention (i.e., for everyone)? Some countries already do this. For example, in Australia at the routine Maternal and Child Health checks, parents are given tip sheets and bookmarks providing information on communication, language and play, including language promotion strategies. In France, regional Professional bodies related to the FNO (Fédération Nationale des Orthophonistes) also deliver tip sheets including communication strategies to be used by parents, as well as behavioural and communication "red Flags" for early identification. This is widely disseminated in Maternal and child health Units known as "Unités de Protection Maternelle et Infantile". There is evidence to suggest that mothers can adapt their communicative behaviour to their children's delayed skills and are vigilant to communicative attempts (Conway et al., 2018). Therefore, this health promotion message might be useful for reassuring parents who are already using strategies that they are 'doing the right thing'. In the end, a mixture of approaches is probably needed, with: 1) a universal approach for all, whereby everyone gets key messages at particular ages and stages of child development about parent-child interaction to promote language development, and then 2) a targeted approach for those who need it.

The widespread use of indirect and parent-child interaction approaches is interesting considering that the respondents were from 59 countries. Many of the goals in language intervention for young children which target parent-child interactions are based on cultural beliefs and principles about the value of talk, how status is handled in interaction, and beliefs about how language is taught to children, interventions which are derived from research which primarily includes white middle-class participants (van Kleek, 1994). The strategies often promoted in these parent-training interventions, such as 'following the child's lead', assume that it is desirable and acceptable for the child to be leading the conversation with the adult, but this value may not be observed in some cultures (Kohnert, Yim, Nett, Kan, & Duran, 2005). Kohnert (2013) claims that understanding the culturally embedded beliefs of those affected by DLD, as well as those of the professionals working with them, are critical factors in the clinical process. For example, Scheffner Hammer (2014) argued that speech and language therapists might make negative judgements in relation to the interactional behaviours of mothers from different cultures and socioeconomic groups without understanding the challenges of living in poverty or their cultural beliefs. The findings of the current study raise interesting questions about the use and acceptability of these approaches across cultural contexts to both therapists and parents.

Although many respondents reported that they used indirect intervention and the evidence supports the use of parent-child intervention programmes, it is not clear *how* they use these approaches. A comparatively small number of commercially available programmes are reported, which raises the question of whether those not using such formal programmes are really using the same principles or whether they are fundamentally different. There is also the issue that even if a particular programme or approach is used in an individual country, these can sometimes be project-based, meaning that they are time, place and/or funding-limited and therefore not widely offered or sustainable. In addition, while early intervention is a widespread concept, it is still not clear from the current evidence-base supporting parent-child interaction interventions who does what, when and how. Is indirect work simply a better way of attaining both short and medium-term outcomes?

This survey was focused on the practitioner voice. The parent voice remains relatively quiet and needs to be explored further. To this end, of course, the decision to adopt a parenting programme will be a combination of the practitioner's experience and interpretation of the evidence in the context of the parent's enthusiasm for this type of approach. Without parental motivation, it is unlikely that such an approach would work. The findings of the survey suggest that individual direct therapy still dominates over indirect therapy. SLT services are usually conducted once or twice a week; however, the duration, dosage and intensity of the treatment depend on the sector in which an SLT works, as well as on the individual characteristics of the child, such as his or her motivation, responsiveness, rate of improvement and overall session attendance (Law et al., 2019).

It was also interesting to see the widespread involvement of fathers and other family members in interventions and this finding is consistent with the literature. There is some evidence on experiences of mothers in interventions for children with DLD (e.g., the sample in Lyons et al., 2008 was all mothers, and Davies et al. (2016) had two fathers out of a sample of 14), but little has been written about the experiences of other family members. It also raises questions about whether SLTs need to use particular types of approaches or strategies to engage other family members. The involvement of grandparents may reflect the changing demographic with many parents working and grandparents taking on care roles (Hank & Buber, 2009).

4.1. Implications for practice

There was clearly a widespread consensus amongst many of the respondents of this survey that parent-child interaction should be

a core element of intervention and with a variety of children in terms of age, profile and ability. It is difficult to say from these findings that it is the norm but practice is clearly widespread irrespective of country. This then poses two questions. The first is if there are countries which do not offer such services, why would this be and how or indeed should it be addressed? In fact, if indirect parent-child intervention is not available, there are questions as to whether this is an evidence-based oversight. The second is exactly which practices we are referring to when we talk about parent-child interaction. These are the questions which need to be addressed using the literature in the context of local provision and cultural aspects.

From a public health perspective, the question becomes should parent-child interaction intervention be a universal provision. Experience suggests that this is unlikely to be enough. Some parents/caregivers need more intensive support; e.g., parents who were uncertain before parent-child interaction training as to how to support their child's development, report really benefitting from modelling and coaching from the SLT (Levickis, McKean, Wiles, & Law, submitted). Simply giving all parents information about the value of parent-child interaction as a way of fostering a child's cognitive and communicative ability is unlikely to be sufficient to change the views of those who have not already brought this into practice. There may exist a need for an approach that could be of general application internationally (such as book reading programmes from an early age), but care has to be taken not to assume that such interventions surely and undoubtedly work at a population level (i.e., at least not in the long term) (McGillion, Pine, Herbert, & Matthews, 2017). Perhaps this type of intervention could be delivered through social media, however little is known about the efficacy of such techniques.

4.2. Implications for research

Surveys like this inevitably raise more questions than they answer. One area in need of further exploration is the definition of what we mean by parent-child interaction interventions. What are the key behaviours that should and perhaps should not be included in such interventions? Research on parental interventions can be difficult to conduct and the results are likely to be challenging to interpret. The reasons for this are two-fold: on the one hand, inconsistencies in terminology mean that the children receiving the intervention may be difficult to group coherently while on the other hand diversities in parental role and engagement in the therapy can results in at least four "levels" of engagement. Parents can simply monitor the therapy taking home materials and encouraging the child's interest. They can be advised by the SLTs in a general way to talk or listen more and they can be responsible solely for homework assignments practising specific activities; or they can actually perform activities aimed at targeted abilities having been specifically trained using video techniques (Roberts & Kaiser, 2011).

While the aim of this study was not to compare individual countries, the findings (based on the reports of practitioners from different countries) suggest there are indeed some differences between countries. This could be due to demographic characteristics, economical factors, but most certainly also dependant on the cultural and language diversities within countries. Religious beliefs and cultural factors can influence the attitudes of parental involvement and the advice given to parents. Engagement of parents coming from diverse communities and cultures, can be affected by a number of barriers, such as trust, especially when SLTs come from outside those communities and have a lack of understanding of parents' cultural approaches regarding cultural beliefs or religions (Peltier, 2011). Parental involvement is also impacted by SLTs' understanding of the culture, and whether the therapeutic programme is culturally appropriate: parental education and communication styles (Verdon et al., 2016). It is also difficult to identify bilingual practices amongst the wide variability of contexts especially when it is linked to specific cultures. For example, in some culturally diverse societies, mothers do not talk directly to the child; children are often exposed to polydiadic situations, which involve more than one language (Rabain-Jamin, 1998). For families in bilingual contexts, it is currently acknowledged that the main message for parents and professionals is to facilitate skills in all languages, with a focus on language(s) spoken at home with all family members (Kohnert et al., 2005). Therefore, future research should aim to distinguish these factors and clarify the reasons for differences between countries.

There is more that could be done from these types of data depending on the nature of the intervention, the dosage and the context in which it is delivered (home/clinic, etc.). Once this has been established the question moves to whether one approach is better than another. Most intervention studies that include parent-child interaction compare it with no intervention or "typical practice". There exists the need for studies which explicitly seek to tease apart the differences between different approaches – for example, video training and interventions delivered via parents. Nevertheless, within these interventions the voice of the parent is often absent. We should aim to examine what parents think about being asked to change their own behaviour to maximise the initiations, joint attention or turn taking of their children. Even more important is to examine whether these sorts of changes are equally acceptable in different cultures. Finally, more evidence is needed regarding the decision making process as to why one child needs parent-child interaction interventions and another does not.

4.3. Limitations of the study

It is impossible to know how "representative" these results are because we do not have the denominator of how many people work with children with DLD in any of the countries included in the study. Consequently, it is not possible to say, despite the size of the study, whether or not there is another group of practitioners who both did not respond and do not countenance deploying parent-child interaction intervention approaches. The fact that the age range of respondents is balanced suggests that there is not a clear age/response bias, but the sample is more highly educated (in terms of post-graduate degrees) than one might have anticipated. Of four thousand respondents, just over a third (1462) said that they worked indirectly through parents.

We have not chosen to explore inter-country or cultural differences in this paper. To explore this further would require a more

detailed qualitative approach to get inside the detail of the survey. It is also worth noting that the respondents answered the questions about issues regarding intervention delivery and theoretical considerations (Sections 2 and 3 of the survey), as requested, with regard to one child on their caseload. This approach has advantages in terms of enabling respondents to provide specific rather than general answers. But, it may have corresponding disadvantages in that the data pertain to specific cases and it is difficult to know how generalisable those are.

Another challenge is the potential heterogenity in both the identification of children with DLD, and in the application of the term "parent-child interaction" and the way the term is interpreted across countries. The fact that so many respondents did not name interventions may add support to this. Finally, we would add the potential strengths and weaknesses of using electronic surveys. On the one hand, it rapidly increases the potential number of respondents, but on the other, it raises concerns about the integrity of the sample.

5. Conclusions

Despite the very different traditions in the practice of intervention across countries, there is clearly a widespread recognition of the importance of this approach from an international perspective, pointing towards a collective understanding of the evidence-base underpinning these interventions. The mixture of family members being involved in interventions is a very promising indication of the role sharing commonly associated with the contemporary family. Yet the number of specific intervention approaches identified is relatively small given the number of respondents and there is clearly a need for a better understanding of what exactly practitioners are doing when they carry our parent-child interaction interventions and how well these interventions work in routine practice.

CRediT authorship contribution statement

James Law: Conceptualization, Funding acquisition, Investigation, Methodology, Project administration, Validation, Writing - original draft, Writing - review & editing. **Penny Levickis:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Validation, Writing - original draft, Writing - review & editing. **Isabel R. Rodríguez-Ortiz:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Validation, Writing - original draft, Writing - review & editing. **Ana Matić:** . **Rena Lyons:** Conceptualization, Investigation, Methodology, Validation, Writing - original draft, Writing - review & editing. **Camille Messarra:** Conceptualization, Investigation, Methodology, Validation, Writing - review & editing. **Edith Kouba Hreich:** Conceptualization, Investigation, Methodology, Validation, Writing - review & editing. **Margarita Stankova:** Conceptualization, Investigation, Methodology, Validation, Writing - review & editing.

Declaration of Competing Interest

None.

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Appendix A. Supplementary data

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